

APPARATUS AND METHOD FOR CONDITIONING  
A WEB ON A PAPERMAKING MACHINE

Abstract of the Disclosure

An apparatus and method for conditioning a moving porous web on a papermaking machine is disclosed. The web has a first and a second surface and a high temperature gaseous boundary layer adjacent at least the second surface. The apparatus contains means for conveying the first surface of the porous web adjacent a support surface in a direction of travel, means for applying a cooling gas against the second surface of the web in a direction substantially normal to the second surface of the web to exert a gas pressure adjacent the second surface, means for stripping at least a portion of the boundary layer away from the second surface of the web prior to contacting the web with the cooling gas, and means for exerting a vacuum force adjacent the first surface of the web associated with the support means and substantially opposite the location at which the pressure force is exerted adjacent the second surface of the web in order to promote, by a combination of the pressure and vacuum forces, a flow of gas through the web from the second surface to the first surface. The apparatus may also include means for moisturizing the web subsequent to cooling the web. The apparatus and method provide a novel combination of stripping and gas pressure/ vacuum force effects for more rapid and efficient removal of the boundary layer at the speeds of modern papermaking machines to improve the condition of the web for further on-line treatments, such as calendaring.